

REMARKS

Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph. The rejection states “ Claim 14, recites ‘electrical connectors on the bottom surface . . .’ It is unclear which connectors are claimed neither specification nor claim do not discuss the connectors function. It was assumed that electrical connectors function to connect DC voltage to the diode.” Applicant respectfully traverses the rejection.

Claim 14 recites “electrical connectors formed on the bottom surface of the semiconductor light emitting diode, the electrical connectors being configured to apply an electric voltage to the semiconductor light emitting diode.” Page 3, lines 19 and 20 of the specification recite “a light-emitting diode comprises an InGaN chip 1 having a light-emitting chip surface. On the lower side of the chip there are electric connectors.” Page 3, lines 26 and 27 of the specification recite “If an electric voltage is applied to the InGaN chip, then this chip emits blue light of a wavelength of approximately 480 nm.” Applicant respectfully submits that all claims meet the requirements of 35 U.S.C. 112.

Claims 14, 16, 17, 28, and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al., US 6,373,188. Applicants respectfully traverse the rejection. Claim 14 recites “a semiconductor light emitting diode having a top surface and a bottom surface, the top surface comprising a light-emitting surface.” **Electrical connectors configured to apply an electric voltage to the semiconductor light emitting diode are formed on the bottom surface of the semiconductor light emitting diode. A plurality of regions of phosphor is provided on the light-emitting surface, which is on the top surface.**

In contrast, Fig. 1 of Johnson et al. clearly illustrates that ohmic contacts 38 and 50 and phosphor coating 30 are all formed on the *same* surface, that is, the **TOP** surface of the light emitting diode. Johnson et al. does not show phosphor on the top surface and electrical

connectors on the bottom surface. Johnson et al. fails to teach every element of claim 14, thus claim 14 is allowable over Johnson et al. Claims 16, 17, 28, and 30-32 depend from claim 14 and are therefore allowable over Johnson et al. for at least the same reason as claim 14.

In response to this argument, the rejection states on page 7 "Applicants argue that the prior art do not disclose the electrical connectors specifically disposed. It was not specified which connectors are claimed. Since Applicants refer to ohmic contacts as the connectors, Examiner agrees that in Johnson et al some of the ohmic contacts (cathode) are disposed at the phosphor level. However, anode contacts should be disposed on a side opposite to the phosphor surface (For example, Christmann et al, US 4,081,764, Fig. 3, r.n. 34). Hence anode contacts satisfy the claim 14 limitation regarding electrical connectors."

First, Applicant notes that ALL of Johnson's contacts, not "some" as the rejection states above, are located on the TOP surface of Johnson's device. For example, Fig. 1 of Johnson clearly shows that both p-ohmic contact 38 and n-ohmic contact 50 are located on Johnson's top surface, the same surface as phosphor coating 30.

Second, the above-quoted passage seems to suggest positioning the anode contact on a side of the device opposite the phosphor surface. Applicant notes that the rejection is a 102 rejection, therefore the cited reference, Johnson in this case, must teach every element of the claim. As described above, Johnson does NOT teach placing the anode contact on a side of the device opposite the phosphor surface. The reference to Christmann adds nothing to this deficiency of Johnson, since the elements of a proper obviousness rejection (such as a motivation to combine Christmann with Johnson) have not been supplied.

Third, even if the office action HAD produced a reference or rejection teaching an anode contact on a side of the device opposite the phosphor surface, such a reference or rejection STILL would not read on claim 14, since claim 14 recites "electrical connectorS formed on the bottom surface of the semiconductor light emitting diode." The electrical

connectors formed on the bottom surface are “configured to apply an electric voltage to the semiconductor light emitting diode.” An anode alone is a SINGLE connector, not “connectors.” In addition, an anode alone cannot be “configured to apply an electric voltage” to the device, since both p- and n-contacts are required.

For at least these reasons, claim 14 is allowable over Johnson. Claims 16, 17, 28, and 30-32 are allowable over Johnson by virtue of their dependence on claim 14.

Claims 14, 16, 17, 28, and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Vriens et al., US 4,822,144. Applicant respectfully traverses the rejection. Applicant previously submitted the following argument:

As described above, claim 14 recites a semiconductor light emitting diode with a top surface and a bottom surface. Electrical connectors are formed on the bottom surface. A plurality of regions of phosphor are provided on a light-emitting surface on the top surface. Applicants have found no such teaching in Vriens et al. RGB luminescent material regions 8 and electrodes 5, 6 are both formed on the same side of radiation source 10. Vriens et al. fails to teach every element of claim 14, thus claim 14 is allowable over Vriens et al. Claims 16, 17, 28, and 30-32 depend from claim 14 and are therefore allowable over Vriens et al. for at least the same reason as claim 14.

The current rejection ignores this analysis of Vriens. In fact, **the Vriens rejection makes no reference at all to the “electrical connectors” recited in claim 14.** The “Response to Arguments” section makes no mention of Vriens. Applicant respectfully request withdrawal of the rejection over Vriens, or a rejection that specifies where Vriens teaches “electrical connectors formed on the bottom surface of the semiconductor light emitting diode.”

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. in view of Duggal et al., US 6,294,800, and over Vriens et al. in view of Duggal et al. Duggal et al. adds nothing to the deficiencies of Johnson et al. or Vriens et al. with respect to claim 14. Claim 29 depends from claim 14 and is therefore allowable over either Johnson et al. or

Vriens et al. in combination with Duggal et al. for at least the same reasons claim 14 is allowable over Johnson et al. and Vriens et al.

Applicant respectfully requests allowance of all pending claims. Should the Examiner have any questions, the Examiner is invited to call the undersigned at (408) 382-0480.

Respectfully submitted,

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